



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/487,688	01/19/2000	Daniel A Schoch	M-181	3451

22855 7590 06/19/2002

RANDALL J. KNUTH P.C.
3510-A STELLHORN ROAD
FORT WAYNE, IN 46815-4631

EXAMINER

CHOI, SAM H

ART UNIT

PAPER NUMBER

2857

DATE MAILED: 06/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/487,688

Applicant(s)

SCHOCH, DANIEL A

Examiner

Sam H Choi

Art Unit

2857

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 April 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 04 April 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Objections

1. Claims 30-39 are objected to because of the following informalities:

In claim 30, lines 3-4 and 5, "said vibration monitoring" should be --said press machine vibration monitoring--; and in lines 7-8, "said sensor assembly" should be --said press machine sensor assembly--. Claims 31-35 are also objected to since they depend on claim 30.

In claim 33, lines 1-2, "said sensor assembly" should be --said press machine sensor assembly--.

In claim 35, lines 1-2, "said vibration monitoring" should be --said press machine vibration monitoring--.

In claim 36, line 4, "said sensor assembly" should be --said press machine sensor assembly--. Claims 37-39 are also objected to as they depend on claim 36.

In claim 37, lines 1-2, "said vibration measurement device" should be --said press machine vibration measurement device--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-7, 11-19, 23-28, and 30-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,633,811 to Canada et al. in view of U.S. Patent No. 5,724,843 to Kirii et al., and further in view of U.S. Patent No. 5,602,757 to Haseley et al.

Referring to claims 1-7, 11-14, 17, 19, 23, 24, 27, 30-34, 36-38, 40, 42, and 43, Canada et al. disclose a device attachable to a machine, for measuring machine conditions, comprising:

an at least one accelerometer attached to the machine for measuring machine conditions and creating a corresponding signal (see Canada et al., column 6, lines 9-15);

a signal processing means for processing said corresponding signal, said signal processing means connected to said at least one accelerometer to process said corresponding signal (see Canada et al., column 6, lines 9-30), using a peak to peak detector (see Canada et al., column 7, lines 3-7), and further processing said corresponding signal with an RMS to DC voltage converter (see Canada et al., column 11, lines 57-59), said signal processing means comprising:

- an acceleration processing means for calculating a machine acceleration value (see Canada et al., column 6, lines 9-12; and column 6, line 64 to column 7, line 2);
- a velocity processing means for calculating a machine velocity value (see Canada et al., column 6, lines 9-12; and column 6, line 64 to column 7, line 2);

Art Unit: 2857

- a displacement processing means for calculating a machine displacement value (see Canada et al., column 6, lines 9-12; and column 6, line 64 to column 7, line 2);

a display means for displaying at least one of said calculated values (see Canada et al., column 6, lines 30-38);

a keyboard acting as a switch, permitting an operator to select one of said calculated values for input to said display means (see Canada et al., column 6, lines 50-52 column 10, lines 40-46; and column 11, lines 8-17); and

a data storage device for selectively storing digitized output (see Canada et al., column 10, lines 3-20).

Although Canada et al. disclose a device for measuring machine conditions, Canada et al. do not specifically disclose using the device on a mechanical press. Kirii et al. disclose a device for measuring machine conditions, using acceleration, velocity, and displacement means, that is performed on a press machine (see Kirii et al., column 60, line 53 to column 61, line 7; and Figure 65). It would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the device of Canada et al., to be used on a mechanical press, as taught by Kirii et al., because abnormal acceleration, velocity, or displacement conditions of a mechanical press will influence the quality of the product (see Kirii et al., column 4, lines 15-18; column 4, line 61 to column 5, line 10; and column 5, lines 28-48).

Furthermore, Canada et al. do not disclose a device for measuring machine conditions comprising a programmable logic controller (PLC) configured to selectably

Art Unit: 2857

control said machine in accordance with signals from said signal processing means and/or said display means. Haseley et al. disclose a vibration monitoring system including a microcontroller to control the operations of the monitored machine (see Haseley et al., column 4, lines 12-27). It is noted that a microcontroller and a PLC are interchangeable in this type of application. It would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the device of Canada et al. to include a microcontroller to control the operations of the monitored machine, as taught by Haseley et al., because such a microcontroller could immediately shut down the monitored machine if it were operating over a critical level.

Referring to claim 15: as noted above, Canada et al. in combination with Kirii et al., and further in combination with Haseley et al., teach a monitoring device including a microcontroller to control the operations of the monitored machine. Canada et al. in combination with Kirii et al. do not teach a press machine controller for calculating vibration severity versus time. Haseley et al. further disclose that the microcontroller processes a vibration severity versus time calculation (see Haseley et al., column 7, lines 14-20). It is noted that the calculation is further processed into a vibration versus frequency output (see Haseley et al., column 7, lines 17-20), but the output can just as easily be a graph of vibration versus time. It would therefore have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the monitoring device of Canada et al. to include a microcontroller, as taught by Haseley et al., to process a vibration severity versus time calculation for output because such a

Art Unit: 2857

modification would enable users of the monitored machine to keep track of the vibrational performance of the machine, to ensure that it is still reliable.

Referring to claims 16, 18, 25, 26, and 28: as noted above, Canada et al. in combination with Kirii et al., and further in combination with Haseley et al., teach a monitoring device including a microcontroller to control the operations of the monitored machine. Canada et al. in combination with Kirii et al. do not teach an alarm signal generator for signaling undesirable operating conditions by forwarding the signal to a remote location. Haseley et al. further disclose a microcontroller that outputs a command signal, containing alarm information, to a remote location, via a modem (see Haseley et al., column 4, lines 21-38). It would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the monitoring device of Canada et al., to include an alarm signal generator for signaling undesirable operating conditions by forwarding the signal to a remote location, because such an alarm signal would indicate impending fault conditions of the machine (see Haseley et al., column 4, lines 21-24).

Referring to claims 35, 39, and 41: as noted above, Canada et al. in combination with Kirii et al., and further in combination with Haseley et al., teach a monitoring device. Canada et al. in combination with Kirii et al. do not teach the monitoring device being defined as a built-in element of the machine. Haseley et al. further disclose a monitoring device that is retrofitted into the machine assembly (see Haseley et al., column 5, lines 34-41). It would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the monitoring device of Canada et al., to include a

Art Unit: 2857

retrofit assembly, as taught by Haseley et al., because such an assembly would allow for more stable vibrational readings from the machine (see Haseley et al., column 6, lines 40-43).

4. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Canada et al. in view of Kirii et al. and Haseley et al., and further in view of U.S. Patent No. 3,859,847 to Ronemus et al.

As noted above, Canada et al., in combination with Kirii et al. and Haseley et al., teach a monitoring device with a signal processing means using a peak to peak detector, and further processes the signal with an RMS to DC voltage converter, and a display. The combination, however, does not specifically disclose a display including a volt meter. Ronemus discloses a machine monitoring system comprising a display including a volt meter. It would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the monitoring device of Canada et al., to include a display with a volt meter, as taught by Ronemus, because such a volt meter would display the vibrational signal of the machine, in volts, to the user.

5. Claims 9, 10, 20-22, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Canada et al. in view of Kirii et al. and Haseley et al., and further in view of U.S. Patent No. 5,802,151 to Bevill, Jr. et al.

As noted above, Canada et al., in combination with Kirii et al. and Haseley et al., teach a monitoring device. The combination, however, does not teach the display

Art Unit: 2857

including an at least one light emitting diode (LED) for indicating a unique vibration severity zone, which is indicative of a range for said calculated value, which is characterized by one selected from the following group including: extreme long-term reliability of the press, very good long-term reliability of the press, reliable conditions under caution, and conditions that are not advisable for long-term reliability. Haseley et al. disclose a display including LEDs, which is controlled from the microcontroller (see Haseley et al., column 4, lines 4-11), but do not specifically disclose that the LEDs indicate a unique vibration severity zone of reliability for the calculated value. Bevill, Jr. et al. disclose a display of LEDs which are indicative of reliable operating conditions of a system. Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the monitoring device of Canada et al., to include a display including LEDs to indicate reliable operations of a system, as taught by Bevill, Jr. et al., because such LEDs give an easily detectable signal for operating conditions of a system.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

Art Unit: 2857

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam H. Choi whose telephone number is (703) 305-1932. The examiner can normally be reached on Monday-Friday from 8:00 AM to 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff, can be reached at (703) 308-1677. The fax number for TC 2800 is (703) 308-7382. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2800 receptionist whose telephone number is (703) 308-1782.

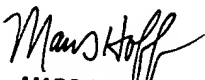
In order to reduce pendency and avoid potential delays, Group 2800 is encouraging faxing responses of Office Actions directly into the Group at (703) 308-7382. This practice may be used for filing papers not requiring a fee. It may also be used for filing papers which require a fee, by applicants who authorize charges to a PTO deposit account. Please identify the examiner and art unit at the top of your cover

Art Unit: 2857

sheet. Papers submitted via FAX into Group 2800 will be promptly forwarded to the examiner.

Sam H. Choi

07 June 2002


MARC S. HOFF
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800